

(19) World Intellectual Property  
Organization  
International Bureau



07 JUN 2005

(43) International Publication Date  
15 July 2004 (15.07.2004)

PCT

(10) International Publication Number  
**WO 2004/058980 A3**

(51) International Patent Classification<sup>7</sup>: C12N 15/82,  
5/10, C07K 14/415, A01H 5/00

(21) International Application Number:  
PCT/EP2003/051104

(22) International Filing Date:  
24 December 2003 (24.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
02080654.3 24 December 2002 (24.12.2002) EP

(71) Applicant (for all designated States except US):  
CROPDESIGN N.V. [BE/BE]; Technologiepark 3,  
B-9052 Zwijnaarde (BE).

(72) Inventor; and

(75) Inventor/Applicant (for US only): SANZ MOLINERO,  
Ana Isabel [ES/BE]; Bernheimlaan 38, B-9050 Gen-  
tbrugge (BE).

(74) Common Representative: CROPDESIGN N.V.; Tech-  
nologiepark 3, B-9052 Zwijnaarde (BE).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR,  
CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,  
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,  
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,  
MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,  
SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,  
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH,  
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,  
SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,  
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

(88) Date of publication of the international search report:  
26 August 2004

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: PLANTS HAVING MODIFIED GROWTH CHARACTERISTICS AND A METHOD FOR MAKING THE SAME

(57) Abstract: The present invention concerns a method for modifying the growth characteristics of plants by modifying expression in a plant of a nucleic acid sequence encoding a 2xC2H2 zinc finger protein and/or modifying level and/or activity in a plant of a 2xC2H2 zinc finger protein. The invention also relates to transgenic plants having modified growth characteristics, which plants have modified expression of a nucleic acid encoding a 2xC2H2 zinc finger protein. For example yield of crop plants are improved by the methods of the present invention.

WO 2004/058980 A3

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/51104

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/82 C12N5/10 C07K14/415 A01H5/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, BIOSIS, EMBASE, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96/39020 A (UNIV CALIFORNIA) 12 December 1996 (1996-12-12)  the whole document	24-28, 30-34, 36, 39-42
X	EP 1 230 843 A (BIO ORIENTED TECHNOLOGY RES AD ; NAT INST OF AGROBIO SCIENCES (JP)) 14 August 2002 (2002-08-14) examples 4-1  ----- -/--	24-28, 30-34, 36, 39-42

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

15 June 2004

Date of mailing of the international search report

01/07/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Kania, T

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/51104

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>KIM J C ET AL: "A novel cold-inducible zinc finger protein from soybean, SCOF-1, enhances cold tolerance in transgenic plants"</p> <p>PLANT JOURNAL, BLACKWELL SCIENTIFIC PUBLICATIONS, OXFORD, GB, vol. 25, no. 3, February 2001 (2001-02), pages 247-259, XP002973197</p> <p>ISSN: 0960-7412</p> <p>cited in the application</p> <p>the whole document</p>	<p>24-28, 30-34,36</p>
A	<p>TAKATSUJI H: "ZINC-FINGER PROTEINS: THE CLASSICAL ZINC FINGER EMERGES IN CONTEMPORARY PLANT SCIENCE"</p> <p>PLANT MOLECULAR BIOLOGY, NIJHOFF PUBLISHERS, DORDRECHT, NL, vol. 39, no. 6, April 1999 (1999-04), pages 1073-1078, XP001005447</p> <p>ISSN: 0167-4412</p>	
A	<p>SAKAMOTO H ET AL: "Expression of a subset of the Arabidopsis Cys2/His2-type zinc-finger protein gene family under water stress"</p> <p>GENE, ELSEVIER BIOMEDICAL PRESS. AMSTERDAM, NL, vol. 248, no. 1-2, May 2000 (2000-05), pages 23-32, XP004198793</p> <p>ISSN: 0378-1119</p> <p>cited in the application</p>	
A	<p>WO 01/90343 A (VOLLBRECHT ERIK ; COLD SPRING HARBOR LAB (US); MARTIENSSEN ROBERT A (U) 29 November 2001 (2001-11-29)</p>	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/51104

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9639020	A	12-12-1996	US 5859337 A WO 9639020 A1	12-01-1999 12-12-1996
EP 1230843	A	14-08-2002	WO 0137643 A1 AU 1183500 A CA 2391991 A1 EP 1230843 A1	31-05-2001 04-06-2001 31-05-2001 14-08-2002
WO 0190343	A	29-11-2001	AU 6484501 A WO 0190343 A2	03-12-2001 29-11-2001